

Then, by development a resin configuration with respect to the mask pattern is formed.

Then, a thin film is formed as the reflecting electrode over the asperities defined in the resin.

Replace the paragraph beginning at page 26, line 20 to the paragraph ending at page 27, line 4, with the following rewritten paragraph/s:

Fig. 22 is a plan view illustrating a conventional mask used in making a reflective LCD.

IN THE CLAIMS

Please add the following *new claims*.

26. (New) A method for fabricating a reflection type liquid crystal display, comprising steps of:

forming a switching element having a source, a drain, and a gate on an insulation substrate;

depositing a photosensitive insulation film to a first thickness on the insulation substrate;

performing a first exposure using a first mask including a light blocking portion and a light transmitting portion such that a first portion of the photosensitive insulation film is exposed for forming a contact hole proximate the drain;

performing a second exposure using a second mask including a light blocking portion and a light transmitting portion such that a second portion of the photosensitive insulation film is exposed to a lesser amount of radiation than was the first portion in the first exposure;

developing and removing the first exposed portion and the second exposed portion of the photosensitive insulation film;

heating the photosensitive insulation film; and

forming a reflection electrode on a selected portion of the photosensitive insulation film.

27. (New) A method for fabricating a liquid crystal display, the method comprising:

forming a transistor comprising a source, a drain, and a gate on a substrate;

depositing a photosensitive insulation film on the substrate;

performing a first exposure using a first mask including a light blocking portion and a light transmitting portion such that a first portion of the photosensitive insulation film is exposed for forming a contact hole proximate the drain;

performing a second exposure using a second mask including a light blocking portion and a light transmitting portion such that a second portion of the photosensitive insulation film is exposed to a lesser amount of radiation than was the first portion in the first exposure;

developing and removing the first exposed portion and the second exposed portion of the photosensitive insulation film;

heating the photosensitive insulation film; and

forming a reflection electrode on a selected portion of the photosensitive insulation film on the substrate.

28. (New) A method for fabricating a liquid crystal display, the method comprising:

depositing a photosensitive insulation film on a substrate;

as part of forming a contact hole which extends all the way through the photosensitive insulation film, exposing part of the photosensitive insulation film using a first mask including a light blocking portion and a light transmitting portion;

as part of forming asperities in a surface of the photosensitive insulation film which do not extend all the way through the photosensitive insulation film, exposing part of the photosensitive insulation film using a second mask including a light blocking portion and a light transmitting portion, wherein exposures using the first mask and the second mask, respectively, are of different exposure amounts;

developing and removing parts of the photosensitive insulation film so as to form at least the contact hole and the asperities in the photosensitive insulation film;

heating the photosensitive insulation film; and

forming a reflection electrode on a selected portion of the photosensitive insulation film on the substrate, so that the reflection electrode is located over at least

some of the asperities and is in electrical communication with the transistor via the contact hole.

29. (New) The method of claim 28, wherein the photosensitive insulation film comprises a positive photosensitive resin.

30. (New) The method of claim 28, wherein the photosensitive insulation film comprises a negative photosensitive resin.

31. (New) The method of claim 28, wherein the first mask includes a plurality of light blocking portions.

32. (New) The method of claim 28, wherein the first mask includes a plurality of light transmitting portions.

33. (New) The method of claim 28, wherein the first and second masks are used to form a plurality of contact holes and a plurality of asperities in the photosensitive insulation film.

34. (New) The method of claim 28, wherein the first exposure provides an exposure amount of from 20 mj to 100 mj, and wherein the second exposure provides an exposure amount of from 160 mj to 500 mj.

photosensitive insulation film using a second mask including a light blocking portion and a light transmitting portion, wherein exposures using the first mask and the second mask, respectively, are of different exposure amounts;

developing and removing parts of the photosensitive insulation film so as to form the at least one contact hole which extends all the way through the photosensitive insulation film as well as the asperities; and

forming at least a first reflection electrode on a selected portion of the photosensitive insulation film, so that the first reflection electrode is located over at least some of the asperities and is in electrical communication with the transistor via one of the contact hole.

40. (New) The method of claim 39, wherein the photosensitive insulation film comprises a positive photosensitive resin.

41. (New) The method of claim 39, wherein the photosensitive insulation film comprises a negative photosensitive resin.

42. (New) The method of claim 39, wherein the first mask includes a plurality of light blocking portions.

43. (New) The method of claim 39, wherein the first mask includes a plurality of light transmitting portions.

44. (New) The method of claim 39, wherein the first and second masks are used to form a plurality of contact holes and a plurality of asperities in the photosensitive insulation film.

45. (New) The method of claim 39, wherein the first exposure provides an exposure amount of from 20 mj to 100 mj, and wherein the second exposure provides an exposure amount of from 160 mj to 500 mj.

46. (New) The method of claim 39, wherein the steps are performed in the order in which they are recited.

47. (New) The method of claim 39, wherein center-to-center distances between adjoining light transmitting portions of the second mask are in a range of from 5 to 50 μm .

48. (New) The method of claim 39, wherein the display comprises a transmissive/reflective liquid crystal display.

49. (New) The method of claim 39, wherein the second exposure is performed prior to the first exposure.

50. (New) A method for fabricating a reflection type liquid crystal display, comprising steps of:

forming a switching element having a source, a drain, and a gate on an insulation substrate;

depositing a photosensitive organic insulation film to a first thickness onto the insulation substrate;

performing a first exposure using a first mask such that the photosensitive organic insulation film on a portion proximate the drain is completely exposed;

performing a second exposure using a second mask such that the photosensitive organic insulation film is exposed to a depth shallower than that of the first exposure;

developing and removing the first exposed portion and the second exposed portion;

heating the photosensitive organic insulation film; and

forming a reflection electrode onto a selected portion of the photosensitive organic insulation film.

51. (New) The method of claim 50, wherein the first and second exposures comprises different exposure amounts.

52. (New) The method of claim 26, wherein the photosensitive insulation film is organic.

35. (New) The method of claim 28, wherein the steps are performed in the order in which they are recited.

36. (New) The method of claim 28, wherein center-to-center distances between adjoining light transmitting portions of the second mask are in a range of from 5 to 50 μm .

37. (New) The method of claim 28, wherein the display comprises a transmissive/reflective liquid crystal display.

38. (New) The method of claim 28, wherein the second exposure is performed prior to the first exposure.

39. (New) A method for fabricating a liquid crystal display, the method comprising:

depositing a photosensitive insulation film on a substrate;

as part of forming at least one contact hole which extends all the way through the photosensitive insulation film, exposing part of the photosensitive insulation film using a first mask including a light blocking portion and a light transmitting portion;

as part of forming asperities in the photosensitive insulation film which do not extend all the way through the photosensitive insulation film, exposing part of the

53. (New) The method of claim 27, wherein the photosensitive insulation film is organic.

54. (New) The method of claim 28, wherein the photosensitive insulation film is organic.

55. (New) The method of claim 39, wherein the photosensitive insulation film is organic.

56. (New) The method of claim 26, wherein circular or polygonal shaped regions are randomly disposed in the second mask.

57. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the center-to-center distances between the adjoining circular or polygonal shaped regions is from 5 to 50 μm .

58. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is more than 20% of the total area of the second mask.

59. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% of the total area of the second mask.

60. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is from 20% to 40% of the total area of the second mask.

61. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% and more than 20% of the total area of the second mask.

62. (New) The method of claim 26, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is 30% of the total area of the second mask.

63. (New) The method of claim 26, wherein the thickness of the photosensitive resin is from 1 to 5 μm .

64. (New) The method of claim 58, wherein the thickness of the photosensitive resin is 3 μm .

65. (New) The method of claim 59, wherein the thickness of the photosensitive resin is 3 μm .

66. (New) The method of claim 60, wherein the thickness of the photosensitive resin is 3 μm .

67. (New) The method of claim 62, wherein the thickness of the photosensitive resin is 3 μm .

68. (New) The method of claim 26, wherein the photosensitive resin is a negative photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that cross-linking of the photosensitive resin does not sufficiently progress in the negative photosensitive resin and resin remaining after said developing is more than 0% and less than 50% of the thickness of the resin before said developing.

69. (New) The method of claim 26, wherein the photosensitive resin is a negative photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that cross-linking of the photosensitive resin does not sufficiently progress in the negative photosensitive resin and resin remaining after said developing is at least 10% and less than 50% of the thickness of the resin before said developing.

70. (New) The method of claim 26, wherein the photosensitive resin is a positive photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that solubilization of a sensitizer that restrains dissolution of the resin in developing solution used in said developing is not sufficiently performed in the positive photosensitive resin and resin remaining after said developing is 0% or more and less than 50% of the thickness of the resin before said developing.

71. (New) The method of claim 26, wherein the photosensitive resin is a positive photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that solubilization of a sensitizer that restrains dissolution of the resin in developing solution used in said developing is not sufficiently performed in the positive photosensitive resin and resin remaining after said developing is from 10% to 50% of the thickness of the resin before said developing.

72. (New) The method of claim 27, wherein circular or polygonal shaped regions are randomly disposed in the second mask.

73. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the center-to-center distances between the adjoining circular or polygonal shaped regions is from 5 to 50 μm .

74. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is more than 20% of the total area of the second mask.

75. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% of the total area of the second mask.

76. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is from 20% to 40% of the total area of the second mask.

77. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% and more than 20% of the total area of the second mask.

78. (New) The method of claim 27, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is 30% of the total area of the second mask.

79. (New) The method of claim 27, wherein the thickness of the photosensitive resin is from 1 to 5 μm .

80. (New) The method of claim 74, wherein the thickness of the photosensitive resin is 3 μm .

81. (New) The method of claim 75, wherein the thickness of the photosensitive resin is 3 μm .

82. (New) The method of claim 76, wherein the thickness of the photosensitive resin is 3 μm .

83. (New) The method of claim 78, wherein the thickness of the photosensitive resin is 3 μm .

84. (New) The method of claim 27, wherein the photosensitive resin is a negative photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that cross-linking of the negative photosensitive resin does not sufficiently progress and resin remaining after said developing is more than 0% and less than 50% of the thickness of the negative photosensitive resin before said developing.

93. (New) The method of claim 39, wherein the second mask has adjoining light blocking portions, and wherein the center-to-center distances between the adjoining light blocking portions is from 5 to 50 μm .

94. (New) The method of claim 39, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is more than 20% of the total area of the second mask.

95. (New) The method of claim 39, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% of the total area of the second mask.

96. (New) The method of claim 39, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is from 20% to 40% of the total area of the second mask.

97. (New) The method of claim 39, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is 30% of the total area of the second mask.

85. (New) The method of claim 27, wherein the photosensitive resin is a negative photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that cross-linking of the negative photosensitive resin does not sufficiently progress so that resin remaining after said developing is at least 10% and less than 50% of the thickness of the negative photosensitive resin before said developing.

86. (New) The method of claim 27, wherein the photosensitive resin is a positive photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that solubilization of a sensitizer that that restrains dissolution of the positive photosensitive resin in developing solution used in said developing is not sufficiently performed so that resin remaining after said developing is 0% or more and less than 50% of the thickness of the positive photosensitive resin before said developing.

87. (New) The method of claim 27, wherein the photosensitive resin is a positive photosensitive resin, and wherein the lesser amount of radiation is an exposure amount such that solubilization of a sensitizer that that restrains dissolution of the positive photosensitive resin in developing solution used in said developing is not sufficiently performed so that resin remaining after said developing is from 10% to 50% of the thickness of the positive photosensitive resin before said developing.

88. (New) The method of claim 28, wherein the second mask has adjoining light blocking portions, and wherein the center-to-center distances between the adjoining light blocking portions is from 5 to 50 μm .

89. (New) The method of claim 28, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is more than 20% of the total area of the second mask.

90. (New) The method of claim 28, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is less than 40% of the total area of the second mask.

91. (New) The method of claim 28, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is from 20% to 40% of the total area of the second mask.

92. (New) The method of claim 28, wherein the second mask has adjoining circular or polygonal shaped regions and the total area of the circular or polygonal shaped regions in the second mask is 30% of the total area of the second mask.

98. (New) A method of making a liquid crystal display apparatus including a liquid crystal layer between first and second substrates, a reflecting film provided on the first substrate for reflecting incident light, the method comprising:

applying a positive photosensitive resin on the first substrate;

exposing a first region of the photosensitive resin by using a photomask which has circular or polygonal shaped portions that are in a range of from 20% to 40% of the total area of said photomask, and exposing a second region of the photosensitive resin so that an integral of exposure amount to the second region is higher than an integral of exposure amount to the first region;

forming asperities in the first region by developing the first region, and forming a concave portion in the second region by developing the second region so that the concave portion has a thickness smaller than those of the first region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

99. (New) A method of making a liquid crystal display apparatus including a liquid crystal layer between first and second substrates, a reflecting film provided on the first substrate for reflecting incident light, the method comprising:

applying a positive photosensitive resin on the first substrate;

exposing a first region of the photosensitive resin by using a photomask which has circular or polygonal shaped portions that are disposed so that center-to-center distances between adjoining circular or polygonal shaped regions are from 5 to 50 μm , and

exposing a second region of the photosensitive resin so that an integral of exposure amount to the second region is higher than an integral of exposure amount to the first region;

forming asperities in the first region by developing the first region, and forming a concave portion in the second region by developing the second region so that the concave portion has a thickness smaller than those of the first region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

100. (New) A method of making a liquid crystal display apparatus including a liquid crystal layer between first and second substrates, a reflecting film provided on the first substrate for reflecting incident light, the method comprising:

applying a positive photosensitive resin on the first substrate;

exposing a first region of the photosensitive resin by using a photomask which has light blocking portions that are in a range of from 20% to 40% of the total area of said photomask, and exposing a second region of the photosensitive resin so that an integral of exposure amount to the second region is higher than an integral of exposure amount to the first region;

forming asperities in the first region by developing the first region, and forming a concave portion in the second region by developing the second region so that the concave portion has a thickness smaller than those of the first region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

101. (New) A method of making a liquid crystal display apparatus including, on one of a pair of substrates disposed so as to be opposed with a liquid crystal layer therebetween, a reflecting film for reflecting incident light, the method comprising:

applying a positive photosensitive resin on one of the substrates;

exposing a first region of the photosensitive resin by using a photomask which has light blocking portions that are disposed so that center-to-center distances between adjacent light blocking portions are from 5 to 50 μm , and exposing a second region of the photosensitive resin so that an integral of exposure amount to the second region is higher than an integral of exposure amount to the first region;

forming asperities in the first region by developing the first region, and forming a concave portion in the second region by developing the second region so that the concave portion has a thickness smaller than those of the first region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

102. (New) A method of making a liquid crystal display apparatus including, on one of a pair of substrates disposed so as to be opposed with a liquid crystal layer therebetween, a reflecting film for reflecting incident light, the method comprising:

applying a negative photosensitive resin on one of the substrates;

exposing a first region of the photosensitive resin by using a photomask which has circular or polygonal shaped portions that are in a range of from 20% to 40% of the total area of said photomask, and exposing a second region of the photosensitive resin so that an integral of exposure amount to the first region is higher than an integral of exposure amount to the second region;

forming asperities in the first region by developing the first region, and removing the photosensitive resin in the second region by developing the second region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

103. (New) A method of making a liquid crystal display apparatus including, on one of a pair of substrates disposed so as to be opposed with a liquid crystal layer therebetween, a reflecting film for reflecting incident light, the method comprising:

applying a negative photosensitive resin on one of the substrates;

exposing a first region of the photosensitive resin by using a photomask which has circular or polygonal shaped portions that are disposed so that center-to-center distances between adjacent circular or polygonal shaped portions are in a range of from 5 to 50 μm , and exposing a second region of the photosensitive resin so that an integral of exposure amount to the first region is higher than an integral of exposure amount to the second region;

forming asperities in the first region by developing the first region, and removing the photosensitive resin in the second region by developing the second region;

heat-treating the developed photosensitive resin; and
forming the reflecting film on the heat-treated photosensitive resin.

104. (New) A method of making a liquid crystal display apparatus including, on one of a pair of substrates disposed so as to be opposed with a liquid crystal layer therebetween, a reflecting film for reflecting incident light, the method comprising:

applying a negative photosensitive resin on one of the substrates;

exposing a first region of the photosensitive resin by using a photomask which has light transmitting portions which collectively have an area of from 20% to 40% of the total area of said photomask, and exposing a second region of the photosensitive resin so that an integral of exposure amount to the first region is higher than an integral of exposure amount to the second region;

forming asperities in the first region by developing the first region, and removing the photosensitive resin in the second region by developing the second region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

105. (New) A method of making a liquid crystal display apparatus including, on one of a pair of substrates disposed so as to be opposed with a liquid crystal layer therebetween, a reflecting film for reflecting incident light, the method comprising:

applying a negative photosensitive resin on one of the substrates;

exposing a first region of the photosensitive resin by using a photomask which has light transmitting portions that are disposed so that center-to-center distances between adjacent light transmitting portions are in a range of from 5 to 50 μm , and exposing a second region of the photosensitive resin so that an integral of exposure amount to the first region is higher than an integral of exposure amount to the second region;

forming asperities in the first region by developing the first region, and removing the photosensitive resin in the second region by developing the second region;

heat-treating the developed photosensitive resin; and

forming the reflecting film on the heat-treated photosensitive resin.

106. (New) A method for fabricating a reflection type liquid crystal display, comprising steps of:

forming a switching element having a source, a drain, and a gate on an insulation substrate;

depositing a photosensitive organic insulation film to a first thickness onto the insulation substrate;

performing a first exposure for a first time period using a first mask such that the photosensitive organic insulation film on a portion of the drain is completely exposed;

performing a second exposure for a second time period using a second mask such that the photosensitive organic insulation film is exposed to a depth shallower than that of the first exposure;